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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,630		Akira Umeda	259687US2PCT	4285
22850	7590	10/31/2005		EXAMINER
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			GARBER, CHARLES D	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 10/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/509,630	UMEDA, AKIRA
	<b>Examiner</b>	<b>Art Unit</b>
	Charles D. Garber	2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 26 September 2005.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 35-79 is/are pending in the application.  
4a) Of the above claim(s) 35,37,39,41,42,44-52,59,61,62,64-70 is/are withdrawn from consideration.  
5)  Claim(s) \_\_\_\_\_ is/are allowed.  
6)  Claim(s) \_\_\_\_\_ is/are rejected.  
7)  Claim(s) 36,38,40,43,53,56,58,60,63 and 71-79 is/are objected to.  
8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_\_.  
\_\_\_\_\_

**DETAILED ACTION**

***Election/Restrictions***

Applicant's election with traverse of group II, claims 36, 38, 40, 43, 53, 56, 58, 60, 63, 71-79 in the reply filed on 09/26/2005 is acknowledged. The traversal is on the ground(s) that there is no undue burden. This is not found persuasive because the different groups require different searches. Group I would require search in class/subclass 73/760+ that group II does not. Group II requires search in class/subclass 73/1.41, 1.85 that group I does not.

The requirement is still deemed proper and is therefore made FINAL.

***Claim Objections***

Claims 71-73, 75-79 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim may not depend from another multiply dependent claim. See MPEP § 608.01(n). Accordingly, the claims 71-73, 75-79 have not been further treated on the merits.

Regarding claims 36, 40, 56 and 60, the center axis of a rod (assuming it's symmetric in more than one way) may be expressed in different directions. The language of the claim could be construed to mean the center axis the longitudinal axis or a lateral axis. However, it is fairly clear from the specification and drawings that Applicant intends the center axis is the longitudinal axis. Applicant must correct the claim language accordingly.

***Allowable Subject Matter***

Claims 36, 38, 40, 43, 53, 56, 58, 60, 63, 71-79 are allowable

Umeda et al. in US Patent 5,000,030 disclose a method and apparatus for measuring dynamic response characteristics of shock accelerometers.

The method includes rod 2 supported on a table 9, a missile 1 used for impacting an end surface as depicted in figures 1 and 2 that generates an elastic wave propating down the length of the rod (see the effect shown in figures 3(a) and 3(b)). Accelerometer 4 provided on the opposite end of the rod (figure 1), measures the acceleration arising from the impact (shown in figure 3(c)).

The Umeda reference does not expressly teach the accelerometer is a direct current device. However, at least the Endevco Model 2271A (see brochure provided in previous Office Action) is a piezoelectric self powering device that inherently produced a current in direct proportion to the measured acceleration and in this respect may be considered to be a direct current device. While the date of the Endevco brochure postdates the instant invention priority, an Endevco representative contacted by phone indicated this particular sensor functioned in the manner described at the time of the Umeda reference.

The reference teaches the rod on its side rather than with its center (longitudinal) axis is aligned with the direction of gravity, in other words, vertically.

Umeda recites the device rests on the table "so as to be free to move in its axial direction". However, the Umeda rod is shown supported at two point which will produce static bending in the rod. Therefore any longitudinal vibration in the rod will be at least partly translated into a lateral shear or bending response.

Sinsky discloses an accelerometer comparator teaching a rod 18 that is vertically aligned (claim 1) which will help ensure "pure longitudinal translation" and no excitation of "flexure or bending modes" (column 2 lines 1-62).

It would have been obvious to one having ordinary skill in the art at the time the invention was made for the rod to be vertically aligned to ensure pure translation and a more accurate calibration.

Umeda also uses a measuring instrument in the form of gauge 3, provided at a position apart from the end surface 2a so as to be capable of discriminating between the elastic wave propagating toward the end surface 2a of the rod 2 and the elastic wave reflected from the end surface 2a. However, the instrument is a strain gauge, not an optical measuring instrument and the gauge will measure only relative velocity (distance/distance/time) rather than a velocity (distance/time) of motion of the end surface of the metal rod arising when the elastic wave pulse reflected at the other end surface of the rod. The strain rate  $\epsilon$  in addition to wave velocity C is used in equations to determine a strain based acceleration used as an input to an accelerometer being calibrated. Indeed, all the critical calculations carried out in the Umeda reference are based upon measured strain. Examiner does not consider one having only ordinary skill would replace all the fundamental calculations of the Umeda reference with calculations based on an optically measured velocity.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Soelkner (US Patent 5,042,302) discloses laser optical means for mapping mechanical waves on a surface.

Umeda (US Patent 5,952,554) discloses using measured strain to test optically based vibrations sensor.

This application is in condition for allowance except for the following formal matters:

See claims objections above. Furthermore, claims withdrawn from examination due to Examiner's restriction remain in the case.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles D. Garber whose telephone number is (571) 272-2194. The examiner can normally be reached on 6:30 a.m. to 3:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cdg



CHARLES GARBER  
PRIMARY EXAMINER